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SHORTER ARTICLES AND DISCUSSION

NOTES ON THE GEOLOGIC WORK OF TERMITES IN THE BELGIAN CONGO, AFRICA

The following notes were taken during 1911 in the region about seventy-five miles west of Lake Tanganyika between latitudes 4° 15′ and 5° south. This region lies along the western base of the great mountain system which passes to the west of Lake Tanganyika.

The Loami River Region.—The gentle slope between the base of the mountain and the swamp of the Loami river is pretty generally covered with termites' nests averaging about ten feet in height and forty feet in diameter at the base. Some of the mounds are much larger, but they are generally composed of two nests which were started so close together as to grow into one mound. They are very much rounded by weathering, but a few of them have newly formed pinnacles projecting from near the tops.

In many well-drained places as many as five hills to the acre may be counted, but this is more than are ordinarily found. One may walk for three or four hours, however, through country averaging more than one nest to the acre. The most favorable places for the nests seem to be where the soil is deep and well drained.

Methods of Construction.—The newest nests recognized were small slightly raised mounds about three feet in diameter with two or three small chimney-like pinnacles rising from them. Before there was anything to attract attention above the surface of the ground, the termites had made a nest below the surface and had mixed the surrounding soil with excrement from their bodies to form a stiff clay. From this base, they then built small chimneys about a foot in diameter, with passages about two inches in diameter leading from the nest. It is up through these openings that the mounds are built, the small white ants carrying up little balls of soft clay and plastering them around the tops of the chimneys. This is the only work in which I have seen the workers expose themselves to the sunlight.

The chimneys are continually being washed down by the storms, forming large rounded mounds with passageways about two inches in diameter leading through them and down below the surface of the ground. These passageways are enlarged at irregular intervals into spherical chambers about four inches

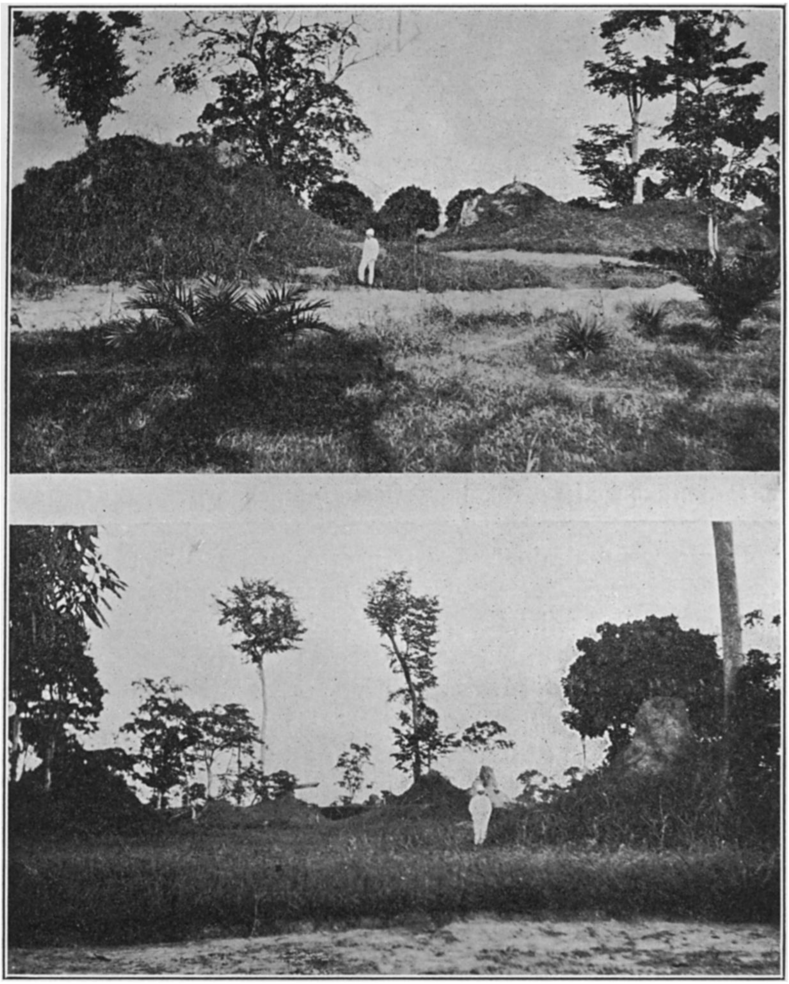


FIG. 1. Termites nests in Stanleyville. Photos. by D. Steel.

in diameter, and in each chamber a cellular ball of chewed-up vegetation is made to fit loosely. The eggs are stuck to the walls of the cells and are presumably hatched by the heat from the organic matter. A ball freshly dug and containing the eggs is always noticeably warm.

I have never seen the eggs being put in place, but have been told that they are carried from the queen and put in place by the workers.

Fig. 1 gives a section through an ant-hill as shown in an excavation made to get clay for plastering the walls of a house.

I have seen a termites' nest excavated for this purpose to a depth of five feet, but further than this I have no evidence as to the depth of their work. Laterally their passageways seem to underlie vast areas, as it is seldom that one can put a wooden box on the ground so far from a foraging route that the insects will not find it out in a few days.

The Stanleyville Region.—There are a great many termite nests in the forest country around Stanleyville, but they are of a slightly different character from those previously described. The newer portions of the Stanleyville nests, instead of being chimney-like structures, resemble the white ants' nests of Brazil as described by Dr. Branner. They are built of earth, in many cases containing grains of sand and masticated vegetable matter. This is built on in a plastic condition leaving no external openings and hardens on exposure.

The walls of these nests wash down, forming rounded mounds and in time form mounds similar to those described from the Loami valley.

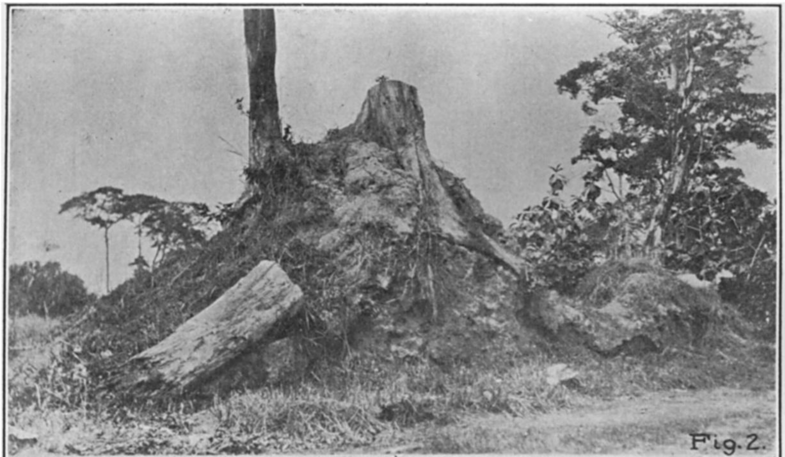
A general idea of the age of the nests can occasionally be obtained in this region from the size of some of the trees which are found growing on the mounds. Fig. 2 shows the stump of a camwood tree which grew on a mound near Stanleyville. Camwood is a hard, red wood much resembling rosewood in appearance, and this stump is thirty inches across the top.

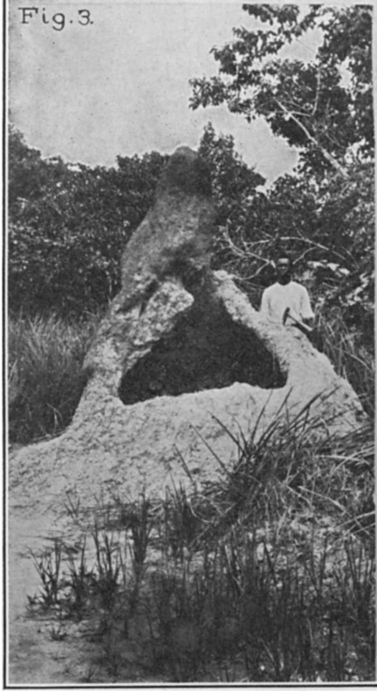
Along the Kasai River.—Still another variety of termite nest is found in the drainage of the Kasai river. This variety does not show the aversion to poorly drained localities that was noted in the Loami valley, but seems rather to prefer the clayey soil of the lowlands to sandstone hill areas.

The nature of the above-ground portions of the nests is illustrated in Figs. 3 and 4. While these termites have extensive underground foraging trails similar to those mentioned above, there seems to be much less of the nest below the general surface of the ground.

The live part of the nest is a dome-shaped chamber at or slightly above the surface of the ground. This chamber ordinarily has walls about six inches thick of firmly cemented sandy clay and enclosing a cellular mass consisting mostly of masticated vegetation. Fig. 3 shows one of these chambers which has been broken open. It also shows a portion of the cellular mass within.

The largest of these nests reach a height of about twelve feet





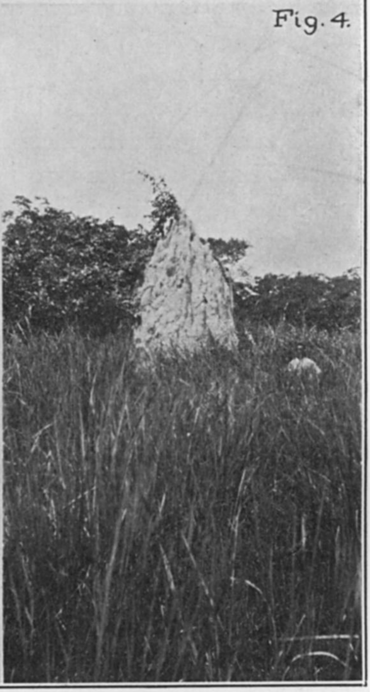


Fig. 2. A termites nest in Stanleyville.
Fig. 3. A broken termites nest near Dima on the Kasai River.
Fig. 4. A termites nest near Dima. Photos. by D. Steel.

and have a diameter at the base of ten or twelve feet. They have no visible openings.

Habits of African Termites.—While the ants of equatorial Africa do not seem to be nearly so numerous or of nearly so much importance to man as those of tropical America,[1] the termites and their work are evident throughout practically the entire Congo basin. They are not a serious pest, however, as their habits are known, and only simple precautions are required to prevent their ravages.

Termites seldom expose themselves to the light, so if an object is placed on supports so far from the ground that they can not easily fill up the intervening space with earth, it is practically safe from their attacks. If, on the other hand, the object happens to be an especially palatable piece of wood, a bale of cloth, or a leather case, and is placed directly on the ground, it is remarkable how soon the termites will find it and begin their attack. A box left in this way seldom suffers much damage the first day, but if left for several days, the bottom may be pretty completely eaten away.

I have never known termites to do any damage farther than about two feet above ground, but there is another insect, a small beetle, which will often eat away the entire inside of building timber leaving nothing visible of their work but the small holes where the insects enter the stick and finely powdered wood which they throw out through those holes.

There are several species of timber, however, which are not attacked by either insect. The walls of practically all of the buildings of the Congo are supported by timbers driven into the ground, and where these timbers are selected by natives who understand the habits of the insects, they are seldom eaten away.

Termites as Food.—I noticed one evening that termites were swarming from all of the nests around our camp. A cry went up among the natives, and the women and children ran with dishes of water and seated themselves around the openings in the nests. They then caught as many of the insects as they could, and either put them into the water so that they could not fly away, or ate them at once. Those which were put into the water were afterwards dried and were considered a delicacy.

DONALD STEEL

OROVILLE, CALIF.

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[1] J. C. Branner, "Geologic Work of Ants in Tropical America," *Bull. Geol. Soc. Amer.*, XXI, 444–496.